

CLAIMS:

1. A shifting device, comprising:
a housing;
5 a shift lever supported by the housing, wherein the shift lever is moved at least along a first manipulation axis and a second manipulation axis to select one of shift positions, the first and second manipulation axes extending in different directions;
10 a non-contact type position detecting mechanism for detecting a shift position selected by the shift lever, wherein the position detecting mechanism includes a plurality of detecting devices and a detection objective device, wherein the relative positions between the detecting devices and the
15 detection objective device are variable, wherein the position detecting mechanism detects the selected shift position according to the relative positions; and
a moving mechanism, wherein, according to movement of the shift lever, the moving mechanism moves at least one of
20 the group of the detecting devices and the detection objective device at least along a first movement axis and a second movement axis, the first and second movement axes extending in different directions.
- 25 2. The shifting device according to claim 1, wherein each detecting device outputs two different types of signals according to the relative positions between the detecting devices and the detection objective device, wherein the detection objective device is formed such that a combination
30 pattern of signals outputted by the detecting devices is changed according to the selected shift position, and wherein the detection objective device is formed such that, even if one of the detecting devices malfunctions, the combination pattern of the remainder of the detecting devices is changed
35 according to the selected shift position.

3. The shifting device according to claim 2, wherein the detection objective device is formed such that the signals outputted when the shift lever is at a forward position are
5 different from the signals outputted when the shift lever is at a reverse position.

4. The shifting device according to claim 1, wherein the moving mechanism includes a first holder and a second holder,
10 wherein the first holder accommodates one of the group of the detecting devices and the detection objective device and allows the accommodated devices or device to move along the first movement axis, and wherein the second holder accommodates the first holder and allows the first holder to
15 move along the second movement axis.

5. The shifting device according to claim 4, wherein, when the shift lever is moved along the first manipulation axis, the detecting devices or the detection objective device
20 are moved along the first movement axis in the first holder.

6. The shifting device according to claim 5, wherein the first manipulation axis is parallel to the first movement axis.

25 7. The shifting device according to claim 4, wherein, when the shift lever is moved along the second manipulation axis, the first holder is moved relative to the second holder along the second movement axis.

30 8. The shifting device according to claim 7, wherein the second manipulation axis is different from the second movement axis.

9. The shifting device according to claim 1, wherein,
35 when the shift lever is moved along the first manipulation

axis, the moving mechanism moves at least one of the group of the detecting devices and the detection objective device along the first movement axis, and wherein, when the shift lever is moved along the second manipulation axis, the moving mechanism
5 moves at least one of the group of the detecting devices and the detection objective device along the second movement axis.

10 10. The shifting device according to claim 1, wherein the position detecting mechanism is of a magnetic type.

11. The shifting device according to claim 10, wherein the detecting devices are Hall elements, and the detection objective device is a magnet.

15 12. A shifting device, comprising:
a housing;

a shift lever supported by the housing, wherein the shift lever is moved at least along a first manipulation axis and a second manipulation axis to select one of shift
20 positions, the first and second manipulation axes extending in different directions;

a position detecting mechanism having a plurality of light emitting portions and a plurality of photoreceptor portions for detecting light emitted by the light emitting
25 portions, wherein each photoreceptor portion forms a pair with one of the light emitting portions, wherein the relative positions between the light emitting portions and the photoreceptor portions are variable, wherein the position detecting mechanism detects the selected shift position
30 according to the relative positions;

a reflector member, wherein the reflector member reflects light emitted by the light emitting portions so that the reflected light is detected by the photoreceptor portions, and wherein a plurality of holes are formed in the reflector
35 member such that the photoreceptor portions detect signals

corresponding to the selected shift position; and

5 a moving mechanism, wherein, according to movement of the shift lever, the moving mechanism moves at least one of the group of the light emitting portions and the group of the photoreceptor portions at least along a first movement axis and a second movement axis, the first and second movement axes extending in different directions.

10 13. The shifting device according to claim 12, wherein each light emitting portion outputs two different types of signals according to the relative positions between the light emitting portions and the photoreceptor portions, wherein the holes are formed such that a combination pattern of signals outputted by the light emitting portions is changed according to the selected shift position of the shift lever, and wherein
15 the holes are formed such that, even if one of the light emitting portions malfunctions, the combination pattern of the remainder of the light emitting portions is changed according to the selected shift position.

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14. The shifting device according to claim 13, wherein the holes are formed such that the signals outputted when the shift lever is at a forward position are different from the signals outputted when the shift lever is at a reverse
25 position.

15. The shifting device according to claim 12, wherein the moving mechanism includes a first holder and a second holder, wherein the first holder accommodates one of the group of the light emitting portions and the group of the photoreceptor portions and allows the accommodated portions to
30 move along the first movement axis, and wherein the second holder accommodates the first holder and allows the first holder to move along the second movement axis.

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16. The shifting device according to claim 15, wherein,
when the shift lever is moved along the first manipulation
axis, the light emitting portions or the photoreceptor
portions are moved along the first movement axis in the first
5 holder.

17. The shifting device according to claim 16, wherein
the first manipulation axis is parallel to the first movement
axis.

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18. The shifting device according to claim 15, wherein,
when the shift lever is moved along the second manipulation
axis, the first holder is moved relative to the second holder
along the second movement axis.

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19. The shifting device according to claim 18, wherein
the second manipulation axis is different from the second
movement axis.

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20. The shifting device according to claim 12, wherein,
when the shift lever is moved along the first manipulation
axis, the moving mechanism moves at least one of the group of
the light emitting portions and the group of the photoreceptor
portions along the first movement axis, and wherein, when the
25 shift lever is moved along the second manipulation axis, the
moving mechanism moves at least one of the group of the light
emitting portions and the group of the photoreceptors along
the second movement axis.